

DOH ARBOVIRUS WEEKLY UPDATE

August 22, 2005

West Nile virus is an emerging infectious disease, and only appeared in the eastern United States in 1999. Since then, the virus has spread to forty-seven states in the continental United States; Washington state has no documented West Nile virus activity. In 2004, two thousand five hundred thirty-nine (2,539) verified human cases have occurred resulting in one hundred (100) deaths. As of 23 August 2005, forty-one states have detected West Nile virus activity; five hundred and one (501) human cases have been reported with twelve (12) fatalities. As part of the West Nile virus surveillance system, the Department of Health (DOH) conducts human, avian, mammal and mosquito surveillance and keeps extensive database and spreadsheet records detailing this surveillance. DOH established a West Nile virus Call Center number at 202-535-2323, a health care and question line at 202-671-0733 and extensive web site information at <http://www.dchealth.dc.gov/>.

The chances of developing symptoms of West Nile virus from the bite of a mosquito are very remote. Much less than one percent of mosquitoes test positive for the virus in areas where the virus is present. And, if bitten by an infected mosquito, a person has less than a one percent chance that he or she will develop symptoms. Generally, the symptoms are very mild and may not even be noticed. Only in very rare cases will the symptoms be severe. Individuals over the age of fifty (50) are the population most at risk. For 2004, the median age for human disease was fifty-two (52) and the median age for mortality was seventy-three (73). Any person who suspects that they have the virus should contact their doctor immediately.

DOH has trained staff to assist residents with identifying and eliminating potential mosquito-breeding sites and to speak at neighborhood meetings and health fairs. The fundamental components of the West Nile virus plan are prevention and personal protection.

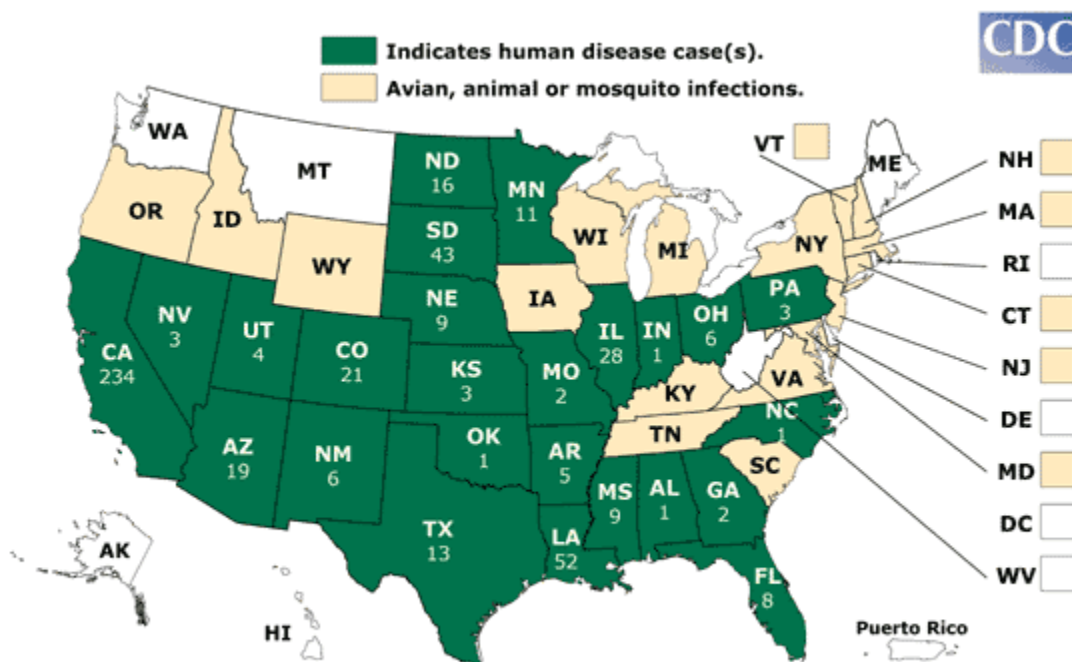
The West Nile virus program is a fluid program that is continually evaluated and altered to protect the public. Mosquito surveillance has been enhanced to assess the risk to public health and safety in the District. It is paramount to track positive mosquito pools and species. As a result of this increased mosquito surveillance, new species of mosquitoes have been identified as positive for West Nile virus in the District.

In 2003, one pool of *Aedes albopictus* tested positive in the District. This species is a daytime human biter and causes increased concern. Previously only *Culex spp.*, a dawn and dusk feeder, tested positive. As a result, DOH has added precautions of protecting residents against mosquito bites at all times during the day and not just dawn and dusk. There were no cases of positivity in this species in 2004, however it is still necessary to take precautions from the bite of *Aedes albopictus*.

The main route of human infection with West Nile virus is through the bite of an infected mosquito. Additional routes of human infection became apparent during the 2002 West Nile epidemic. It is important to note that these other methods of transmission represent a very small proportion of cases. Investigations have identified WNV transmission through transplanted organs and through blood transfusions. There is one reported case of transplacental (mother-to-child) WNV transmission. There is also one reported case of transmission of WNV through breast-milk. Although most people who contract West Nile have no symptoms and those who do normally suffer little more than flu-like illness, it is believed they still can carry small amounts of the virus in their blood for several days.

<i>DISTRICT OF COLUMBIA WEST NILE VIRUS SURVEILLANCE 2000-2005</i>						
HUMAN SURVEILLANCE						
	2000	2001	2002	2003	2004	2005
Tested	0	20	80	43	17	0
Positive	0	0	31*	3	2	0
Probable	0	0	3	6	0	0
Negative	0	20	28	25	15	0
Incomplete	0	0	18***	9***	0	0
MOSQUITO SURVEILLANCE						
	2000	2001	2002	2003	2004	2005
Pools Tested	0	841	1,315	2,114	1,671	557
Pools Positive	0	3	84	49	42	9
#Females tested	0	4,368	10,755	20,684	28,929	6463
Rate of Positivity	0	.36%	6.39%	2.31%	2.51%	1.62%
AVIAN SURVEILLANCE **						
	2000	2001	2002	2003	2004	2005
Collected		914	905	NA	NA	NA
Tested		444	206	NA	NA	NA
Positive	5	360	175	NA	NA	NA
Negative		84	31	NA	NA	NA
Rate of Positivity		81.08%	84.95%	NA	NA	NA

2005 West Nile Virus Activity in the United States (Reported to CDC as of August 23, 2005*)



*Currently, West Nile virus maps are updated weekly to reflect surveillance reports released by state and local health departments to CDC's ArboNET system for public distribution. Map shows the distribution of avian, animal, or mosquito infection

occurring during 2005 with number of human cases if any, by state. If West Nile virus infection is reported to CDC from any area of a state, that entire state is shaded.

Data table:

As of August 23, 2005 avian, animal or mosquito WNV infections have been reported to CDC ArboNET from the following states: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Wisconsin, and Wyoming.

Human cases have been reported in: Alabama, Arizona, Arkansas, California, Colorado, Florida, Georgia, Illinois, Indiana, Kansas, Louisiana, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, and Utah.

Maps detailing county-level human, mosquito, veterinary, avian and sentinel data are published each week on the collaborative USGS/CDC West Nile virus web site: <http://westnilemaps.usgs.gov/>

District-Wide Mosquito Update

The District of Columbia Public Health Laboratory tests all mosquito specimens collected by the Department of Health. Specimens collected from Department of Defense Installations and National Park Services are transported to the U.S. Army Center for Health Promotion and Prevention (USACHPPM) for testing. There have been six thousand four hundred sixty-three (6,463) female mosquitoes sorted into five hundred and fifty-seven (557) pools. All have been processed for testing. Year-to-date, nine (9) pools have tested positive during the 2005 surveillance season.

Specimens are collected from DoD installations at Walter Reed Army Medical Center, Ft. McNair, Armed Forces Retirement Home, Marine Barracks, Naval Observatory, Anacostia Annex of the Air Force, Washington Naval Yard and the Nebraska Avenue Complex, National Park Services locations at Rock Creek Park, National Capital Parks-East, National Capital Parks-Central and the C & O Canal, East. Department of Health trap locations are located in each Ward of the District.

STATUS OF DISTRICT PROGRAMS:

CALL CENTER

- DOH established a West Nile Virus Call Center at 202-535-2323 effective April 1, 2004. Residents and visitors are encouraged to call the Call Center to report

standing water, mosquito concerns, and dead birds and to request advice and assistance.

HUMAN SURVEILLANCE DATA

- YTD 2005, the DC Public Health Lab currently has confirmed no patients as West Nile virus positive.
- In 2004: Seventeen specimens have been tested for West Nile virus; one remains pending, 14 have been confirmed negative and two cases are positive. There were no fatal cases.
- In 2003: Twenty-four specimens have been tested for West Nile virus; five are pending, 16 have been confirmed negative and three cases are positive. There were no fatal cases.
- In 2002, 80 human samples were submitted for testing. Thirty-one samples were positive. Three samples were probable, twenty-eight samples were negative and eighteen samples were considered pending because information was not complete. There were two fatalities related to West Nile virus.
- In 2001, 20 human samples were submitted for testing. All samples tested negative.

HUMAN SURVEILLANCE PROTOCOL

- DOH has contacted all hospitals to review protocol for WNV-suspect cases.
- DOH staff conducts active human surveillance.
- DOH staff distributed West Nile virus Physician Alerts by blast fax to health care providers and hospitals detailing the West Nile virus case definition, reporting and specimen collection and submission criteria.
- DOH staff prepares, processes, transports and submits human specimens for testing.

MOSQUITO SURVEILLANCE DATA

- YTD 2005; 6,463 female mosquitoes sorted into 557 pools have been collected by DOH and sent for testing. There have been 9 positive pools.
- Locations of positive pools are as follows:
 - 4400 blk of Harrison Ave, NW (1)
 - 500 blk of Lebaum St, SE (1)
 - 3000 blk of North Capitol Street, NW (1)
 - 4200 blk Warren St, NW (1)
 - 700 blk Tuckerman St, NW (2)
 - 2412 34th St, SE (1)
 - 2017 32nd Pl, SE (2)
- In 2004, 1671 pools were collected in the District and submitted for testing. Forty-two (42) pools tested positive.
- In 2003, 2215 pools were collected in the District and submitted for testing. Forty-nine(49) pools tested positive, including 1 pool of *Aedes sp.* and 48 pools of *Culex spp.* Locations of positive pools are as follows: Rock Creek Park (2), Armed Forces Retirement Home (13), Anacostia Annex (18), Marine Barracks (5), Washington Naval Yard (2), Naval Observatory (2), Nebraska Avenue

Complex (1), 2700 blk of Woodley Pl, NW (1), 4300 blk of Polk St, NE (1), 4400 blk of Harrison St, NW (1).

- In 2002, 1315 pools were collected in the District and submitted for testing. 84 pools tested positive, including 5 pools of *Aedes spp.* and 79 pools of *Culex spp.* Locations of positive pools are as follows: 3100 blk Conn. Ave (1), Rock Creek Park (17), Ft. McNair (47), US Soldier and Airmen's Home (19).
- In 2001, 870 pools were collected in the District and submitted for testing. Three pools tested positive.

MOSQUITO SURVEILLANCE PROTOCOL

- Thirty-one gravid traps have been set for the week of August 22-26 in Wards 1-8.
- Trapping began the first week in June.
- DOH staff sets gravid traps, throughout the District in each ward per an established grid pattern. A collaborative effort between DOH, National Park Services (NPS) and the Department of Defense (DoD), ensures that trapping locations incorporate all areas of the District.
- DOH staff set mosquito traps and collect specimens from over 30 traps. Traps are set for 2 trap nights per week. Mosquitoes are sorted, prepared for testing and transported to the DC PHL for arboviral testing. Following a positive tissue culture confirmed positive through PCR, specimens will be tested for St. Louis encephalitis (SLE), Eastern Equine encephalitis (EEE), Lacrosse encephalitis and dengue fever.
- *Anopheles* mosquitoes, a possible carrier for malaria are collected and tested. Levels of *Anopheles* mosquitoes present in the District are relatively low. In 2003, thirty-three (33) were collected and placed into twenty (20) pools all testing negative for malaria. In 2002, there were 19 individual female *Anopheles* placed into eight pools all testing negative.

AVIAN SURVEILLANCE DATA

- YTD, there have been 25 calls for sightings of dead birds. The breakdown by ward is as follows; W1=0, W2=2, W3=4, W4=6, W5=3, W6=7, W7=3, W8=0.
- In 2002, the first positive bird was collected on May 1. Nine hundred five (905) birds were collected, three hundred forty (340) were processed for testing, thirty-one (31) tested negative, one hundred thirty-four (134) were disposed of and one hundred seventy-five (175) birds tested positive with a rate of positivity of 84.95%.
- In 2001, the first positive bird was collected on July 10. Nine hundred fourteen (914) birds were collected, four hundred forty-four (444) were tested and three hundred sixty (360) tested positive, with a percent of positivity of 81.08%.
- In 2000, the first positive bird was collected on September 28, with a total of 5 positive birds for the year.

AVIAN SURVEILLANCE PROTOCOL

- DOH no longer collects and tests dead birds because West Nile virus is considered endemic in the District. Further positive results of dead bird testing do not provide any relevant information. Information will be collected on sightings of dead birds for empirical information.

- Sightings of dead birds are received and compiled at the Call Center. Residents are asked to report the location and physical description of all dead birds. A database will be established and maintained to capture all information.
- The Smithsonian Institute-National Zoological Park and the US Army are testing select birds for West Nile and other arboviruses. Results will be posted through this report.
- Information on the proper disposal of the birds is given to all callers. Specific detailed instructions for disposal are available on the DC Website (dchealth.dc.gov) and at the Call Center (202-535-2323).

MOSQUITO CONTROL DATA

- YTD 2005, DOH staff has larviced 4,699 catch basins. The Ward breakdown for catch basins is as follows; Ward 1-1065, Ward 2-444, Ward 3-319, Ward 4-857, Ward 5-337, Ward 6-641, Ward 7-629, Ward 8-380.
- In 2004, DOH staff has larviced 1,732 catch basins. The Ward breakdown for catch basins is as follows; Ward 1-332, Ward 2-141, Ward 3-595, Ward 4-43, Ward 5-184, Ward 6-0, Ward 7-0, Ward 8-437.
- In 2003, DOH staff larviced 3,578 catch basins. The Ward breakdown is as follows; Ward 1-188 catch basin; Ward 2-250 catch basins; Ward 3-971 basins; Ward 4-629 basins; Ward 5-430 basins; Ward 6-277 basins; Ward 7-539; Ward 8-415 catch basins.
- In 2002, DOH staff larviced ten thousand eight hundred thirty-five (10,835) catch basins.
- In 2001, DOH staff larviced three thousand four hundred ninety-six (3,496) catch basins.

MOSQUITO CONTROL PROTOCOL

- As surveillance data reflects locations of West Nile virus activity, staff will larvicide an eight-square block area surrounding these sites.
- DOH staff larvicide in response to WNV positive human test results, WNV positive mosquito results, mosquito density and nuisance areas and community concerns. The larvicide, a biological product that kills mosquitoes in the larval stage, is placed in catch basins and in areas of standing or stagnant water.
- The larvicidal application is repeated approximately every 5-6 weeks.
- Larviciding has been determined to be more effective over a period of time than adulticiding. In 2004, mosquito catches were significantly reduced in areas where larviciding efforts were conducted.
- The District does not expect to spray for mosquitoes because of low efficacy; die-offs of non-target species and potential health risks to a high population of persons affected with respiratory problems and compromised immune systems.
- Killing mosquito larvae and eliminating mosquito-breeding sites are the most effective practices to reduce the numbers of mosquitoes.
- The Center for Disease Control and Prevention (CDC) recommends that larvicide be used to reduce mosquito populations.

MAMMAL SURVEILLANCE PROTOCOL

- DOH staff conducts passive mammal surveillance.
- DOH staff distributed information to vets, pet shops, and horse stable managers detailing reporting and specimen collection and submission criteria and protocol.
- No mammals have tested positive in the District for the last five years.
- Letters to all veterinarians in the District have been sent to assist veterinarians in recognizing, submitted samples for testing and reporting West Nile virus cases.

OUTREACH AND EDUCATION DATA

- YTD 2005, 3,100 flyers have been distributed to elderly homes, day care providers, neighborhood services, door-to-door and to all DC Libraries. Literature has also been available at various events.
- In 2004, approximately 1,411 brochures were distributed.
- In 2003, approximately 49,103 brochures were distributed.

OUTREACH AND EDUCATION PROTOCOL

- DOH Representatives have participated in many media interviews with CNN, Channel 7/8, Washington Post, WHUR Radio, Channel 9, Metro Weekly News, Washington Times, Channel 5 and the Washington City Paper.
- DOH has educated participants of the DC Government Safety Fair by setting up a booth, passing out literature and speaking with concerned citizens.
- DOH has prepared an informational brochure emphasizing prevention and protection. The brochure has contact information for the Call Center and website. It has been translated into Spanish, Chinese, Korean and Vietnamese.
- DOH has developed space on the DOH website to provide residents with information, including, the District Arbovirus Surveillance and Response Plan for 2005, methods of controlling mosquitoes, CDC questions and answers, recent press releases and weekly updated surveillance reports.
- DOH has developed an informational script and power point presentation for community presentations.
- Brochures have been distributed to private citizens, day care centers, senior citizen homes, residential housing, hospitals, libraries, schools, parks and recreation centers, churches, other District agencies, NSC Coordinators and all ANC Commissioners.